REMARKS

Claims 1-31 are currently pending for the Examiner's review and consideration. Claim 1 was amended to remove any potential ambiguity in the claim by inserting the word "optionally" before each optional component. Claim 24 was amended to correct informalities and to reflect the necessity (and not the optionality) of the hydroxylamine/hydroxylamine salt component. Claims 25 and 27 were amended to conform to standard claim language, removing the "preferably" phrases. Claim 31 was amended to correct informalities and to reflect the necessity (and not the optionality) of the phosphoric acid component. As no new matter has been added by these amendments, Applicant respectfully requests their entry at this time.

Claims 1-23 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons set forth on page 2 of the Office Action. In particular, the Examiner was allegedly unclear as to the optionality of the fluoride-containing and alkanolamine compounds in lines 11-12 of claim 1. Applicants respectfully traverse and submit that the Examiner's assumption that these compounds were optional was correct, in that the term "optionally" was a compound modifier, not only for the one or more other acid compounds, but also for the one or more fluoride-containing compounds and for the one or more alkanolamine compounds. Nevertheless, to remove any further potential ambiguity, Applicants have amended claim 1 such that the term "optionally" is recited immediately preceding each of the aforementioned optional components. As a result, Applicants respectfully submit that the claim is not indefinite and respectfully request reconsideration and withdrawal of the rejection.

Claims 1, 3-4, and 14-24 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,147,042 to Yata *et al.* ("Yata") for the reasons set forth on pages 3-4 of the Office Action. Applicants respectfully traverse.

Yata discloses a composition for removing etching residue from a semiconductor comprising a polyphosphoric acid-urea condensate copolymer (or salt thereof). *See* Yata, columns 3-4.

In contrast, the claimed invention recites the use of phosphoric acid (*see* instant claim 1; or in some cases, a salt thereof – *see* instant claim 24), which is not polymeric but is in the small molecule form, H_3PO_4. Pyrophosphoric acid is not intended to be encompassed in the claim term reciting phosphoric acid. Further evidence of this can be gleaned from original claim 7,

which recites pyrophosphoric acid, $H_4P_2O_7$, as an "other acid." By doing so, Applicants respectfully submit that the difference between the claimed phosphoric acid (or salt) and other, even small-molecule, compounds containing phosphoric acid reaction products has been demonstrated. Thus, it is evident that Applicants intended phosphoric acid, as currently claimed, to encompass H_3PO_4 (or salt) and not merely any compound containing a protonated phosphate group.

As a result, because Yata does not disclose cleaning or residue-removing compositions comprising H_3PO_4 (phosphoric acid), Applicants respectfully submit that Yata does not render obvious claims 1, 3-4, and 14-24, as amended. Further, in light of the foregoing, Applicants respectfully request that the obviousness rejection be reconsidered and withdrawn.

Claims 1-13 and 25-31 were rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,030,932 to Leon *et al.* ("Leon"), in view of U.S. Patent No. 6,162,738 to Chen *et al.* ("Chen"), for the reasons set forth on pages 4-5 of the Office Action. Applicants respectfully traverse.

Leon discloses a cleaning composition comprising water, a fluorine-containing compound, and either (a) a compound selected from an amine, a quaternary ammonium compound, and ammonium hydroxide, or (b) hydroxylamine or a salt thereof. *See* Leon Abstract. Leon does not disclose the presence of phosphoric acid in this cleaning composition, but teaches that hydroxylamine can be reacted with an acid ("*e.g.*, nitric acid or sulfuric acid;" *see* Leon, column 4, line 40) to form a hydroxylamine salt, which can then be added to the composition. Leon also teaches that hydroxylammonium phosphate is a potentially useful hydroxylamine salt. *See Id.*, column 4, line 45.

In contrast, instantly amended claim 1, for example, recites a cleaning or residue-removing composition comprising hydroxylamine or a salt, phosphoric acid, and water. While initially it might seem like hydroxylammonium phosphate (chemical formula = $(H_3N^+OH)_3[(PO_4)^{-3}]$) is merely a reaction product of hydroxylamine and phosphoric acid, such is not necessarily the case. Indeed, the dissociation pKa of the three phosphoric acid protons are approximately 2.1, 7.2, and 12.7, respectively. Thus, in order for all three protons on phosphoric acid to be dissociated from the phosphate anion in a solution (and thus to form each of the three hydroxylammonium cations required to form hydroxylammonium phosphate), the pH of that solution would have to be above about 12.7, which is extremely basic/caustic. While Leon

teaches that its compositions can have a wide pH range (2-9), it also cautions against solutions that are too caustic, noting that, at extreme pH values, "the metal layers on the substrate are subject to attack." *See Id.*, column 5, lines 13-21. Therefore, Applicant respectfully submits that Leon teaches one of ordinary skill in the art away both (a) from the use of hydroxylammonium phosphate in the absence of phosphoric acid and (b) from the creation of hydroxylammonium phosphate *in situ* in solution from hydroxylamine and phosphoric acid reagents. Thus, Applicants respectfully submit that Leon teaches away from the claimed invention, as recited in amended claims 1-13 and 25-31.

Chen, like Leon, also does not render obvious instant claims 1-13 and 25-31, as amended. Chen does mention mineral acids such as phosphoric acid as being potentially useful in cleaning compositions (*see* Chen, column 7, lines 17-20), but does not disclose or suggest its combination with nitrogen-containing compounds such as hydroxylamine or a salt thereof. Because Chen does not even disclose all the elements of the invention recited in currently amended claims 1-13 and 25-31, Applicants respectfully submit that Chen does not render these claims obvious.

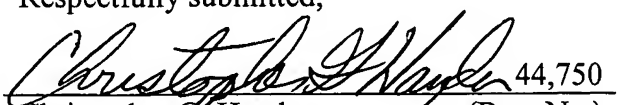
Furthermore, Chen does not remedy the deficiencies of Leon. While Chen does teach various mineral acids in cleaning compositions, including phosphoric acid (*see id.*, column 7, lines 17-21), hydrochloric acid is specifically preferred (*see id.*), thus teaching away from the combination use of phosphoric acid with the composition comprising hydroxylammonium phosphate in Leon. Indeed, there is not even any motivation in either Leon or Chen to combine their disclosures in such a way as to selectively attain the invention recited in currently amended claims 1-13 and 25-31.

As a result, Applicants respectfully submit that neither Leon nor Chen individually, nor their combination renders obvious claims 1-13 and 25-31, as amended. Further, in light of the foregoing, Applicants respectfully request that the obviousness rejection be reconsidered and withdrawn.

No fee is believed to be due for this submission. Should any fees be required, however, please charge the required fee(s) to Morgan, Lewis & Bockius LLP Deposit Account No. 50-0310. A copy of this sheet is enclosed for such purpose.

Respectfully submitted,

Date: October 7, 2004



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Christopher G. Hayden (Reg. No.)
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Ave., N.W.
Washington, D.C. 20004
(202) 739-3000